

REMARKS

Upon careful and complete consideration of the Office Action dated July 30, 2009, Applicants have amended the claims which, when considered in conjunction with the comments herein below, are deemed to place the present application into condition for allowance. Favorable reconsideration of this application, as amended, is respectfully solicited.

New claims 70-81 have been added. As claims 3, 5, 7, 15, 21-39, 42, 44, 46, and 58-63 remain cancelled without prejudice, claims 1, 2, 4, 6, 8-14, 16-20, 40, 41, 43, 45, 47-57 and 64-81 are under consideration upon entry of the present amendments. No new matter has been introduced by these amendments.

New claims 70, 73, 74, 77, 78, 79, and 81 further include an anionic bitumen emulsion or a slow set anionic bitumen emulsion. Anionic bitumen emulsion is discussed in numerous portions of the application as filed (e.g., page 11, lines 3-4; and page 20, lines 15-23), and is also recited in the claims as filed (e.g., claim 9). Regarding "slow set anionic bitumen emulsion," this feature is supported by, for example, page 39, lines 8-9, and page 42, lines 14-16 of the application as filed wherein it is stated that an anionic bitumen emulsion Grade SS60 is used. As shown in the attached supporting document (TOSAS Press Release, July 3, 2009, attached as Exhibit A), Grade SS60 of anionic bitumen emulsion is well-known to be a slow set emulsion (Applicants refer, in particular, to page 2, fourth paragraph of Exhibit A).

New claims 71 and 75 further specify that the anionic bitumen emulsion is in an amount greater than 0 and up to 5% by weight of the solid aggregate matrix. Support for this feature is found, for example, at page 48, lines 5-8 and Figure 7 of the application as filed.

New claims 72, 76, and 80 further specify that the fulvic acid is a synthetic fulvic acid. Support for this feature is found, for example, at page 40, lines 13-16 and Figure 9 of the application as filed.

In the Office Action, the Examiner has rejected claims 1, 6, 40, and 45 under 35 U.S.C. §103 (a) as allegedly unpatentable in view of International Publication No. WO 00/40669 to de Bruyn ("de Bruyn") in further view of U.S. Patent 4,597,928 to Terentiev et al. In making the rejection, the Examiner considers de Bruyn to teach or suggest all of the features of the indicated claims, except the feature that a complex fatty acid, such as fulvic acid, is included in the binder composition or resulting construction material. However, the Examiner contends that this deficiency of de Bruyn is still taught by the combination of de Bruyn and Terentiev et al. Specifically, the Examiner directs Applicants to the teaching in de Bruyn of adding sulfuric acid as a catalyst to facilitate polymerization. The Examiner couples the foregoing teaching with the teaching in Terentiev et al. that sulfuric acid can be substituted by humic or fulvic acids. The Examiner refers, in particular, to col. 3, lines 59-63 of Terentiev et al.

In refuting the basis of the Examiner's grounds for rejection, Applicants herein attach a new Declaration executed by inventor Henri A. de Bruyn (hereinafter referred to as the "Declaration").

As discussed in Paragraph 5 of the Declaration, the Examiner acknowledges that de Bruyn does not teach or suggest any humic substance, such as fulvic acid. Instead, de Bruyn teaches the use of sulfuric acid (e.g., col. 3, lines 8-10 of de Bruyn). Significantly, as de Bruyn is directed to road construction and related materials, one skilled in the art would rely on the teachings of de Bruyn for guidance in producing an improved road construction material. Since de Bruyn does not in any way teach or suggest a humic substance altogether, de Bruyn provides not the slightest motivation to one skilled in the art to include a humic substance, much less fulvic acid in particular.

As discussed in Paragraph 6 of the Declaration, the Examiner contends that Terentiev et al. provides motivation for one to modify de Bruyn by the teaching in Terentiev et al. that sulfuric acid can be substituted with humic or fulvic acids (Examiner cites, in particular, col. 3, lines 59-63 of Terentiev et al.). However, Terentiev et al. is not directed to any composition remotely similar to a road construction material. Terentiev et al. does not even teach or suggest a soil-containing formulation. Instead, Terentiev et al. is directed to fiberboard materials produced from wood pulp. The fiberboard materials of Terentiev et al. would be useless within the scope of the instant claims. No correlation exists in the requirements for road construction and fiberboard materials. The two fields are unrelated, and thus, what is beneficial for one may be entirely detrimental to the other. Hence, one skilled in the art would not seek the guidance of Terentiev et al. in attempting to improve a road construction material.

As discussed in Paragraph 7 of the Declaration, one skilled in the art of road construction materials would readily find unfounded the notion in Terentiev et al. that the same acidity can be provided whether sulfuric acid or a humic or fulvic acid is used. As asserted by Henri A. deBruyn, even at higher temperatures and at high concentrations of fulvic acid, the instant soil-containing construction materials would not achieve the same acidity as sulfuric acid on a mole-by-mole basis. As further asserted by Henri A. de Bruyn, fulvic acid has not been found in the instant invention to have a significant impact on the acidity of the final product. Rather, fulvic acid has been found in the instant invention to significantly promote polymerization and crosslinking (i.e., curing) of the final product to a degree that was completely unexpected. This unexpected result is largely a result of the special interactions between fulvic acid and soil particles. Such special interactions are nowhere suggested in Terentiev et al. since Terentiev et al. does not teach or suggest soil.

Thus, Applicants have shown that the combination of de Bruyn and Terentiev et al. does not teach or suggest at least the feature of including fulvic acid in the instant claims directed to road construction materials. Therefore, the combination of de Bruyn and Terentiev et al. does not render the indicated claims obvious. Accordingly, Applicants respectfully request that the rejection of the claims under 35 U.S.C. §103 (a) over De Bruyn and Terentiev et al. be withdrawn.

The Examiner has also rejected claims 10, 11, 49, and 50 under 35 U.S.C. §103 (a) in view of de Bruyn and Terentiev et al., as above, in further view of U.S. Patent No. 4,376,088 to Prather ("Prather"). The Examiner relies on de Bruyn and Terentiev et al., as above, for allegedly teaching base claims 1 and 40. The Examiner relies on Prather solely for teaching a surfactant (e.g., dodecylbenzene) in a binder composition. However, as Prather does not compensate for any of the deficiencies already noted for the combination of de Bruyn and Terentiev et al., the combination of de Bruyn, Terentiev et al., and Prather is at least similarly deficient. Accordingly, as the foregoing combination of references do not render the indicated claims obvious, Applicants respectfully request that the rejection be withdrawn.

The Examiner has also rejected claims 4, 43, 64, 65, and 69 under 35 U.S.C. §103 (a) in view of de Bruyn and Terentiev et al., in further view of U.S. Patent No. 4,886,854 to Markessini et al. ("Markessini"). The Examiner relies on de Bruyn and Terentiev et al., as above, for allegedly teaching base claims 1 and 40. The Examiner relies on Markessini et al. solely for teaching a sugar in a binder composition. However, as Markessini et al. does not compensate for any of the deficiencies already noted for the combination of de Bruyn and Terentiev et al., the combination of de Bruyn, Terentiev et al., and Markessini et al. is at least

similarly deficient. Accordingly, as the foregoing combination of references do not render the indicated claims obvious, Applicants respectfully request that the rejection be withdrawn.

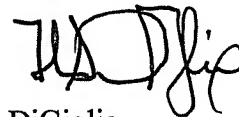
The Examiner has also rejected claim 67 under 35 U.S.C. §103 (a) in view of de Bruyn and Terentiev et al., as above, in further view of U.S. Patent No. 5,523,049 to Terpstra. The Examiner relies on de Bruyn and Terentiev et al., as above, for allegedly teaching base claims 1 and 40. As far as the additional humic acid component, the Examiner contends that Terpstra teaches this. However, as Terpstra does not compensate for any of the deficiencies already noted for the combination of de Bruyn and Terentiev et al., the combination of de Bruyn, Terentiev et al., and Terpstra is at least similarly deficient. Accordingly, as the foregoing combination of references do not render the indicated claims obvious, Applicants respectfully request that the rejection be withdrawn.

Moreover, Applicants point out that bitumen and anionic bitumen emulsion are specified in several dependent claims (e.g., method claims 8 and 9, composition claims 47 and 48, as well as several of the new claims). With regard to claims 8 and 9, the Examiner considers bitumen and anionic bitumen emulsion to not add further patentability in view of the alleged teaching in de Bruyn of including anionic bitumen emulsion prior to setting. However, the Examiner has not considered the many benefits, advantages, and unexpected results in using an anionic bitumen emulsion, and a slow set anionic bitumen emulsion in particular, in the particular road construction materials as instantly claimed. In the instant compositions, the anionic bitumen emulsion can further favorably interact with fulvic acid, which is not possible in the composition taught in de Bruyn since de Bruyn fails to teach fulvic acid. Applicants direct the Examiner, in particular, to page 20, lines 15-24 of the instant application wherein it is taught, in particular, that bitumen adds further water resistance, strength, and suppleness to the solid

aggregate mix. As also discussed on page 47, lines 20-23 of the application as filed, bitumen showed an improvement in both dry and wet strength. As also discussed in the paragraph bridging pages 49-51, although bitumen emulsion is widely used in road construction and maintenance as binding and waterproofing agents, the large, positive interaction between the resin and bitumen was not anticipated. As also shown from the passage on page 62, top, to page 63, line 20 of the application as filed, the anionic bitumen emulsion used herein produced unexpected improvements in compression strengths and indirect tensile strengths.

In view of the foregoing comments and amendments submitted in response to the Office Action, which are deemed to be fully in compliance with and responsive to the Examiner's requirements, the early and favorable reconsideration and allowance of the application is earnestly solicited.

Respectfully submitted,



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Enclosure: (Exhibit A)
FSD/EG: